

Appl. No. 09/646,599

Amendment dated October 21, 2003

Reply to office action mailed July 21, 2003 (Paper No. 16)

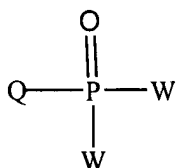
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

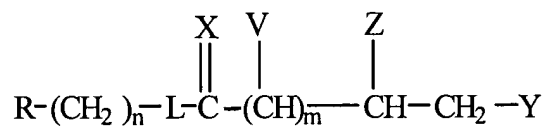
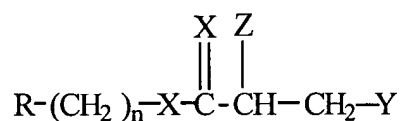
**Listing of Claims:**

Claims 1-4 (cancelled)

Claim 5 (currently amended): A ~~composition, comprising:~~ a compound of the following formula



wherein each W is independently SH, OH,  $\text{OCH}_2\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$ ,  $\text{OCHCH}_3\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$ ,  $\text{OPO}_3\text{H}_2$ ,  $\text{HOP(O)}_2\text{H}$ ,  $\text{HOP(O)}_2\text{H}_2$ ,  $\text{OP(O)}(\text{OH})\text{-O-PO}_3\text{H}_2$  or Q, wherein when one W is Q, the other W is OH, and Q is one of the following structures:



wherein

Y is O or S;

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R is unsubstituted, saturated or unsaturated, straight or branched-chain alkyl, or  $((\text{CH}_2)_p\text{O})_q(\text{CH}_2)_p\text{T}$  where q is an integer from 1 to about 900 and where each p is independently an integer from 2 to about 10 and T is OH, or  $\text{O}(\text{CH}_2)_b\text{CH}_3$  where b is an integer from 0 to about 10;

V is independently OH, SH, H,  $\text{NH}_2$ , halogen,  $\text{OPO}_3\text{H}_2$ , or  $\text{OSO}_3\text{H}$ ;

n is an integer from 0 to about 10;

m is an integer from 0 to about 10;

Z is OH, SH,  $\text{NH}_2$ , halogen, H,  $\text{O}(\text{CH}_2)_b\text{CH}_3$  where b=0 to about 2, or  $\text{SO}_3\text{H}$ ;

L is independently O, S, or  $\text{CH}_2$ ; and,

X is independently O or S.

Claim 6 (currently amended): A ~~composition comprising a~~ compound of Claim 5, selected from the group consisting of reverse ester-LPA, reverse thioester-LPA and a salt of either compound.

Claim 7 (currently amended): A composition comprising 3-oleyl-1-thiophosphoryl-2-O-methyl-rac-glycerate, or a salt thereof.

Claim 8 (currently amended): A method of treating apoptosis, or preserving or restoring function in a cell, tissue or organ comprising administering *in vivo* a therapeutically effective amount of a compound ~~pharmaceutically acceptable composition~~ of claim ~~1~~ 5.

Claim 9 (currently amended): A ~~The composition~~ comprising a compound of Claim ~~1~~ 5, ~~wherein said composition further comprises~~ and a potentiating component.

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Claim 10 (original): The composition of claim 9, wherein said component is a polyethylene glycol.

Claim 11 (original): The composition of Claim 9, wherein said component is a protein.

Claim 12 (original): The ~~composition~~ of Claim 9, wherein said component is a lipid membrane structure.

Claim 13 (original): The composition according to claim 12, wherein the lipid membrane structure comprises at least one compound selected from the group consisting of a lipid, a phospholipid and a surfactant.

Claim 14 (original): The composition according to claim 13, wherein the lipid is selected from the group consisting of phospholipids, glycolipids, steroids, bolaamphiles and a combination thereof.

Claim 15 (original): The composition according to claim 13, wherein the surfactant is nonionic.

Claim 16 (original): The composition according to claim 13, wherein the lipid membrane structure further comprises a tissue targeting compound.

Claim 17 (original): The composition according to claim 16, wherein the tissue targeting compound is selected from the group consisting of an antibody, a cell surface receptor, a ligand for a cell surface receptor, a polysaccharide, a drug, a hormone, a hapten, a special lipid and a nucleic acid.

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Claim 18 (original): The composition according to claim 13, wherein the composition further comprises a component selected from the group consisting of a polypeptide, a modified polypeptide and a polymer.

Claim 19 (original): The composition according to claim 18, wherein the polypeptide is a fatty acid binding protein.

Claim 20 (original): The composition according to claim 18, wherein the polymer is a naturally occurring polymer and is selected from the group consisting of dextrans, hydroxyethyl starch, and polysaccharides.

Claim 21 (original): The composition according to claim 20, wherein the polysaccharide is selected from the group consisting of trehalose, glucose, maltose, lactose, maltulose, iso-maltulose, lactulose, mono-reducing glycosides of polyhydroxy compounds selected from sugar alcohols, other straight chain polyalcohols, raffinose, stachyose, melezitose, dextran, sucrose and sugar alcohols thereof, maltitol, lactitol, iso-maltulose, palatinit, 2-D-glucopyranosyl-1(6-mannitol and their individual sugar alcohols.

Claim 22 (original): The composition according to claim 18, wherein the polymer is synthetic and is selected from the group consisting of polyalkyl glycols, polyoxyethylated polyols, polyvinylpyrrolidone, polyhydroxyethyl methacrylate, polyvinyl alcohols, polyurethane, polytrimethylene glycol, polypropylene glycol, polyacrylic acid, polyethyloxazoline, polyacrylamide,

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polyphosphazene, poly(lactic acid), poly(glycolic acid), polyamino acids and polymeric mixtures thereof.

Claim 23 (original): The composition according to claim 11, wherein the protein comprises at least one compound selected from the group consisting of a lipid binding protein and a lipid carrier protein.

Claim 24 (original): The composition according to claim 11, wherein the protein is selected from the group consisting of albumin, soy and plant protein, cytochrome c, low density lipoprotein, acyl carrier protein, and alphafeto protein.

Claim 25 (original): The composition according to claim 12, wherein the weight ratio of PEG to LPA is 1–100,000 to 1.

Claim 26 (original): The composition according to claim 12, wherein the PEG has an average molecular weight from about 8,000 to about 40,000.

Claim 27 (original): The composition according to claim 12, wherein the PEG has an average molecular weight of about 20,000.

Claim 28 (currently amended): A The composition comprising a compound of according to claim  
+ 5, further comprising pharmaceutically acceptable excipients.

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Claim 29 (currently amended): ~~A~~ The composition comprising a compound of ~~according to claim~~  
~~± 5~~, further comprising a pharmaceutically effective agent.

Claim 30 (original): The composition according to claim 29, wherein the pharmaceutically effective agent is selected from the group consisting of a drug, an antibiotic, a wound healing agent and an antioxidant.

Claim 31 (original): The composition according to claim 30, wherein the drug is selected from the group consisting of antipyretic and anti-inflammatory, analgesics, antiarthritics, antispasmodics, antidepressants, antipsychotics, tranquilizers, antianxiety drugs, narcotic antagonists, antiparkinsonism agents, cholinergic antagonists, chemotherapeutic agents, immuno-suppressive agents, antiviral agents, parasiticides, appetite suppressants, antiemetics, antihistamines, antimigraine agents, coronary vasodilators, cerebral vasodilators, peripheral vasodilators, hormonal agents, contraceptives, antithrombotic agents, diuretics, antihypertensive agents, cardiovascular drugs, opioids, and vitamins.

Claim 32 (original): The composition according to claim 30, wherein the antibiotic is selected from the group consisting of ampicillin, tetracycline, chloramphenicol, erythromycin, amphotericin B and penicillin.

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Claim 33 (original): The composition according to claim 30, wherein the wound healing agent is selected from the group consisting of transforming growth factors, platelet-derived growth factors, epidermal growth factors and fibroblast growth factors.

Claim 34 (currently amended): The composition according to claim 30, wherein the antioxidant is selected from the group consisting of Vitamin C, Vitamin E , Vitamin A, dihydrolipoamide, flavenoids, butylated hydroxytoluene, butylated hydroxyanisole, Trolox®, propyl gallate, phenolic antioxidants, phenothiazines, desferrioxamide, HBED and CP130.

Claim 35 (currently amended): A method of making the composition of Claim 9, comprising the steps of:

- a) forming a lipid dispersion comprising LPA;
- b) providing at least one of said potentiating components; and
- c) combining the products of steps a and b to form a composition comprising a compound of Claim 5 and a potentiating component.

Claim 36 (original): The method according to claim 35, wherein the lipid dispersion is formed by the steps of:

- a) dissolving LPA and any other lipids in organic solvent;
- b) removing the solvent to form dried lipid; and
- c) dispersing the dried lipid into aqueous media by the steps of:
  - i) forming an even lipid dispersion; and

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- ii) forming an even dispersion of lipid membrane structures.

Claim 37 (currently amended): The method according to claim 35, further comprising the step of d) sterilizing the ~~dispersion~~ composition.

Claim 38 (original): A composition obtained according to a method according to claim 35.

Claims 39-42 (cancelled)

Claim 43 (original): The method according to claim 8, comprising administering said composition to a patient suffering from a condition related to apoptosis, ischemia, traumatic injury or reperfusion damage.

Claim 44 (original): The method according to claim 8, comprising administering said composition to a patient suffering from gastrointestinal perturbation.

Claim 45 (original): The method according to claim 44, wherein the gastrointestinal perturbation is caused by a stimulus selected from the group consisting of viruses, chemotherapeutic agents, radiation, infectious diseases, inflammatory bowel disease, and diarrhea-causing organisms.

Claim 46 (original): The method according to claim 45, wherein the virus is human immunodeficiency virus.



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Claim 47 (original): The method according to claim 8, wherein the method diminishes apoptosis-related problems associated with immunosuppressing viruses, chemotherapeutic agents, or radiation and immunosuppressive drugs.

Claim 48 (original): The method according to claim 43, wherein the reperfusion damage is associated with coronary artery obstruction; stroke; cerebral infarction; spinal/head trauma and concomitant severe paralysis; frostbite; coronary angioplasty; blood vessel attachment; limb attachment; organ attachment; and kidney reperfusion.

Claim 49 (currently amended): A method of culturing cells comprising treating cells with an amount of the compound composition according to claim 1 effective to prevent apoptosis or preserve the cells.

Claim 50 (original): The method according to claim 49, wherein the cells are part of a tissue or organ.

Claim 51 (currently amended): A method of preserving an organ comprising adding an effective amount of the compound composition according to claim 1 to the solution with which the organ is treated.

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Claim 52 (currently amended): A method of organ preservation comprising administering to a donor organ at least one intravenous bolus of an effective amount of the compound composition according to claim ~~1~~ 5.

Claim 53 (original): The method according to claim 8, wherein the patient is undergoing a condition selected from the group consisting of cardioplegia, congestive heart failure, angioplasty, and a valve operation.

Claim 54 (currently amended): A method of treating dermatologic conditions, comprising topically administering a therapeutically effective amount of a ~~pharmaceutically acceptable composition comprising the~~ compound composition according to claim ~~1~~ 5 to a patient in need of such treatment.

Claim 55 (original): The method according to claim 54, wherein the dermatological condition is wrinkling, or hair loss.

Claim 56 (currently amended): A method of treating wounds comprising administering an effective amount of the compound composition according to claim ~~1~~ 5.

Claim 57 (currently amended): The method according to claim ~~55~~ 56, wherein the wounds are burn wounds.